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Daniel Kopcow
Weston Solutions Inc
205 Campus Drive
Berkeley Heights, NJ 08837

November 25, 2009

NOTICE OF DEFICIENCY

Re: Interim Remedial Measure Remedial Action Workplan and Engineering and Monitoring Control Plan for LNAPL Removal, dated August 4, 2009
Hatco Chemical Corporation
1020 King George Post Road
Fords, Woodbridge Twp, Middlesex County, NJ
SRP PI No.: G000003943, EA No.: RPC000001

Dear Mr. Kopcow:

The New Jersey Department of Environmental Protection (Department) acknowledges receipt of the Interim Remedial Measure Remedial Action Workplan (IRM RAWP) and Engineering and Monitoring Control Plan for LNAPL Removal, dated August 4, 2009 for the Hatco Site submitted by Weston Solutions pursuant to the Administrative Consent Order (ACO) executed on May 2005 and the Technical Requirements for Site Remediation at N.J.A.C. 7:26E (TRSR).

The Department has completed its review of this submittal and identified the following deficiencies:

Deficiency: N.J.A.C. 7:26E-6.2(a)5 - Failure to include in the Remedial Action Workplan a detailed description of the remedial action and the remedial technology to be conducted for each area of concern.

Deficiency: N.J.A.C. 7:26E-6.4(a) - Failure to document the effectiveness of the remedial action.

Specific comments are presented below.

1. Section 1, Introduction, Page 1-1: The Department defers to the USEPA on the applicability of wet weight versus dry weight analysis in evaluating PCBs in the LNAPL and soils.

2. Section 1, Introduction, Page 1-3: The document states "The objective of this IRM is to remove LNAPL containing PCBs from areas of the Hatco site where excavation of this material is not feasible

due to the presence of existing infrastructure or where excavation would adversely affect Hatco's operations." However, limited site-specific information was provided in this document. At USEPA's request, Weston submitted additional information in an email dated September 9, 2009 on existing infrastructure and site operations. Weston shall incorporate the additional information into this IRM RAWP.

3. Section 2.1, LNAPL Characteristics and Occurrence, Page 2-2: The document suggests that PCBs are the only component of the LNAPL and the PCBs greater than 500 parts per million (ppm) in soils are the driving force behind the LNAPL removal. The Department reminds Weston that regardless of the PCB concentrations, pursuant to TRSR {N.J.A.C. 7:26E-6.1(d)}, "Free and/or residual product determined to be present pursuant to N.J.A.C. 7:26E-2.1(a)11 shall be treated or removed when practicable, or contained when treatment or removal are not practicable." Weston shall incorporate a discussion of all the LNAPL contaminants of concern (COCs) into this IRM RAWP.

4. Section 2.1, LNAPL Characteristics and Occurrence, Page 2-3: The document states "...LNAPL... consists of a mixture of phthalates esters, ketones, and plasticizers..." However, limited information on the LNAPL characteristics, COCs, and contaminant concentrations were included in this document. The Department acknowledges that some information was provided to the USEPA and the Department in an email dated August 28, 2009. Weston shall include a comprehensive discussion on characteristics and contaminant concentrations of all LNAPL COCs (not just PCBs) and how the presence of these other COCs may impact the implementation of the remedy.

5. Section 2.1, LNAPL Characteristics and Occurrence, Page 2-3: The document states "the LNAPL was found to contain PCBs at concentrations as high as 12,000 ppm...investigation results from Woodward Clyde (1995) and Weston (2007) show that the LNAPL distribution has not significantly changed over a 12-year period." Weston shall include a more detailed discussion of the referenced comparison of the 1995 and 2007 data. Weston shall include a discussion on if the LNAPL COCs and their respective concentrations vary across the site.

6. Section 3, LNAPL Removal, Page 3-1: The document states "...LNAPL thickness will be reduced to "non-noticeable"....the metric for non noticeable is ...when the bailer is removed there is no evidence of free product on the inside or outside of the bailer or on the water surface." In previous discussions, Weston indicated that the LNAPL was difficult to collect as the material "kept sliding off the sampler." The Department is concerned that this may be issue for the above referenced bailer method as well. Weston shall provide additional detail on the bailer to be employed (i.e. material, size, compatibility with LNAPL COCs, etc.) to ensure that method used to confirm the presence or absence of LNAPL is reliable. Weston shall also incorporate other LNAPL monitoring devices into the visual assessment program.

7. Section 3.1, LNAPL Removal Area: Based on an evaluation of existing infrastructure, Weston proposed an LNAPL recovery system using wells and trenches in lieu of excavation for the area north of the ZAA Building, the Effluent Pre-Treatment (EPT) System area and Former Ponds No. 1, 2, 3 and 4. PCBs were detected in the soil and LNAPL in the Former Ponds and Muck Area at concentrations up to 12,000 ppm at depths from 2 feet to at least 20 feet below ground surface (ft bgs). Based on this data, the Department does not agree that LNAPL recovery alone (via trenches and wells) can effectively remediate PCB in the soils in the Former Ponds and Muck Area. The Department requires additional clarification on the remedial activities at specific areas of concern (AOC) as noted below.

7a. Former Ponds No. 1 and 2: Former Ponds No. 1 and 2 are not represented on any figures in this document. A review of historic figures suggests that the northern trench will bisect Former Ponds No. 1 and 2. Two recovery wells are also proposed to the south. Weston shall provide additional information on the location, depth, and radius of influence of the northern trench relative to these former ponds and the recovery wells. Weston shall clarify why recovery wells were not proposed for the area north of the trench and former ponds. Weston shall include Former Ponds No. 1 and 2 on all appropriate figures.

7b. Former Pond No. 3: Former Pond No. 3 is not represented on any figures within this document. A review of historical figures suggests that the easternmost sheetpile wall will bisect Former Pond No. 3 such that the LNAPL will either be excavated (to the south) or removed via recovery wells (to the north). It is unclear to the Department why Weston has decided to bisect this AOC with the sheetpile wall as there appears to be no existing infrastructure or site operations that would prevent excavation of Former Pond No. 3. Historical data indicates that LNAPL is quite extensive in this AOC, extending from depths of 4 to at least 16 ft bgs. In addition, LNAPL was detected in recent boring BLN-B-1 to a depth of 19 ft bgs where the boring was terminated. As such, vertical delineation has not been completed in this area. The logs also indicated LNAPL was detected in various soil lithologies in this AOC, such that the Department does not agree with Weston's assessment that the LNAPL is found only in coarse-grained soils and is therefore readily recoverable by extraction alone. Unless adequate justification is provided, the Department requires that the sheetpile wall be moved northward such that the proposed excavation of the eastern 'leg' of the LNAPL plume includes Former Pond No. 3. Weston shall include Former Pond No. 3 on all appropriate figures.

7c. Former Pond No. 4: Former Pond No. 4 is not represented on any figures within this document. The Department acknowledges that a portion of Former Pond No. 4 lies underneath the EPT System and is not accessible for removal via excavation at this time. One recovery well is proposed within the bounds of Former Pond No. 4. Weston shall clarify if one recovery well is sufficient and provide additional information on the location, depth, of and radius of influence of the southern trench relative to the Former Pond No. 4 and this well. Weston shall include Former Pond No. 4 on all appropriate figures.

7d. Former Muck Area and the Western LNAPL Boundary: The data indicate that the "LNAPL free zone" between the western arm and leg of the LNAPL plume as depicted on Figure 2 is not accurate. The entire western portion of the site has been impacted by disposal of PCB contaminated bottom sediments or "muck" from the former ponds. Due to the nature of the disposal activities in this area, significant contamination may exist at deeper intervals not sampled during the past and recent 2007 soil boring investigations due to the depth of groundwater and restrictions on sampling in the wetlands. A review of the analytical data and boring logs between the "western arm and leg" of the LNAPL plume (i.e. borings L-11, L-12, J12_5W, LN_B-3, BLN_B-20, LN_B25-30E) indicate that PCBs greater than 500 ppm and/or LNAPL were detected in the soil outside of the LNAPL plume boundary. The depth of LNAPL is approximately 6 to at least 10 ft bgs in this area, however, most of the recent delineation borings did not extend below 5 ft bgs in depth. Unless adequate justification is provided, the Department requires that excavation of the western 'leg' be extended into the western 'arm' as far north as possible. Weston shall include the Former Muck Areas on all appropriate figures.

7e. Eastern LNAPL Boundary: The data indicate that the eastern boundary of the LNAPL plume extends further than is depicted in Figure 2. The logs for several borings outside the LNAPL plume boundary denote the presence of LNAPL at various depths including but not limited to: NPLN_B-9,

NPLN_B-3, NPLN_B-10, LN_B-6_20E, LN_B-51, LN-B-52, etc. Weston shall clarify why these borings were not included within the LNAPL plume boundary and revise the plume line and all appropriate figures accordingly.

8. Section 3.2, Active LNAPL Removal, Page 3-6: The Department has continuously requested clarification on the location and construction details of the existing passive recovery trench. However, Weston has never provided this information. In an email dated August 16, 2009, Weston indicated that the existing passive recovery trench would not be retrofitted or incorporated into the LNAPL recovery system proposed in this IRM. Regardless of whether or not the existing trench is functional after the recovery system is operational, Weston shall include the existing trench on all appropriate figures. Weston shall provide additional information on how the new recovery system will render the existing passive recovery trench "obsolete" as referenced.

9. Section 3.2.1, Recovery Wells, Page 3-7: The document states that groundwater levels are between 3 and 15 ft bgs and that the recovery wells will be installed to a depth of approximately 30 ft bgs. Weston shall clarify if the anticipated screens lengths of 10 to 15 feet are appropriate and if the well depth takes into account the seasonally fluctuations in groundwater levels and shallow nature of the groundwater in some areas. Weston shall also clarify the depth of the "grey clay" with respective to the well depth and whether or not the wells will penetrate this confining layer.

10. Section 3.2.2, Recovery Trenches, Page 3-8: The document references the size of the individual trench chambers but not the depth to which either trench will be installed. Weston shall clarify the length and depth of the proposed trenches and their radius of influence vertically and horizontally.

11. Section 3.2.3, Barrier Walls, Page 3-9: The document states, "the sheet piles will be driven to a depth of approximately 10' below the observed LNAPL layer..." Weston shall clarify what "10' below the LNAPL layer" means. Weston shall clarify if the sheetpile wall will be driven or "keyed" into the grey clay layer below or some other firm substrate, otherwise Weston shall provide information on how these walls will be "anchored" to prevent them from sinking into the wet sands below. The document states, "This installation depth is intended to prevent LNAPL migration while allowing groundwater flow to continue beneath the barrier..." Weston shall clarify this statement and provide additional information on the effects of pumping on groundwater levels relative to the depth of the sheetpile wall to ensure that LNAPL will not move underneath the wall if pumping drawdown is excessive.

12. Section 3.3.1, Effluent Requirements, Page 3-12. Table 1 includes "estimated average and maximum influent concentrations" of the treated water following LNAPL removal and phase separation. Weston shall clarify how these maximum and average concentrations were derived.

13. Section 3.3.2, Influent Requirements, Page 3-13. Weston shall clarify the notation "*" in Table 2.

14. Section 3.4 LNAPL Recovery Monitoring, Page 3-18: The document states "LNAPL recovery will continue until the LNAPL thickness is reduced to non-noticeable." At a minimum, upon shutdown of the active LNAPL recovery system, Weston shall continue monthly gauging of all wells for a period of at least two years after no LNAPL or sheen has been observed. Weston shall also conduct at least 8 rounds of groundwater sampling for all COCs not just PCBs upon shutdown of the LNAPL recovery system.

15. Figures: Weston shall include the existing passive recovery trench and historic AOCs, such as the Former Muck Areas and Former Ponds No. 1, 2, 3, and 4, on all appropriate figures.

Attachment 1, Confirmation Sampling Plan

16. Section 2.1, LNAPL Remedial End-Point Monitoring, Page 4: The document states, "...and collection of samples for visual assessment from each of the three LNAPL recovery trenches on-site." Weston shall clarify if the existing passive recovery trench will be included in the LNAPL visual assessment plan and if not provide additional information on the location of the third trench.

17. Section 2.1, LNAPL Remedial End-Point Monitoring, Page 4: The document states, "The monitoring program will include two rounds of visual assessment: in the spring and in the fall." The Department finds this minimalist approach to the confirmation of LNAPL removal unacceptable. As noted, Weston shall continue monthly gauging of all wells and conduct at least 8 rounds of groundwater sampling for all COCs for a period of at least two years after no LNAPL or sheen has been observed.

18. Section 2.1, LNAPL Remedial End-Point Monitoring, Page 5: The document states, "It is anticipated that these monitoring wells will be installed following completion of the IRM removal, and will be used solely for documenting the absence of LNAPL." The Department finds this unacceptable. The Department requires that any new wells installed to visually document the presence or absence of LNAPL must also be sampled to evaluate groundwater quality for all COCs as referenced above.

19. Section 2.2 Post-LNAPL Removal Confirmation Soil Sampling, Page 6: The document states "Only those grid nodes that fall within the LNAPL limit boundary will be sampled during the IRM confirmation sampling program as the extensive pre-design sampling program conducted in 2007 established the limits of LNAPL with a high level of confidence." As previously noted, the boring logs indicate that the LNAPL plume boundary is not as accurate as Weston asserts. LNAPL was detected beyond the limits of the plume boundary in several borings including but not limited to: NPLN_B-9, NPLN_B-3, LN_B-6_20E, LN_B-51, LN_B-52, LN_B-3, BLN_B-20, LN_B-25-30E, LN_B-67, LN_B-66-15S, LN_B-59, LN_B-69E, LN_B-55, TP-32, TP-33, BLN_B-22, LN_B-15, etc. The Department requires that Weston review all borings (historic and from the 2007 investigation) and revise the plume boundary accordingly. In addition, Weston shall also incorporate the closest grid nodes that fall outside of the LNAPL plume boundary in the confirmatory sampling plan.

20. Section 2.2 Post-LNAPL Removal Confirmation Soil Sampling, Page 6: The document states "...one soil sample will be collected for each 30 x 30 foot grid node for each 2 feet of LNAPL-impacted soil column. Data gathered during the 2007 pre-design sampling program was used to establish "top of LNAPL" and "bottom of LNAPL" contours for which the upper and lower bounds of the vertical samples collected from each boring were estimated." The Department finds the 30x30 foot grid spacing acceptable. However, as the 2007 investigation was specifically designed to "fill in the gaps" of the existing data, the Department finds that basing the confirmatory sampling intervals on this limited information unacceptable. Based on historic information, the data indicates that many of the 2007 borings were not extended to LNAPL free zones. In addition, sample intervals presented in the table do not reflect information collected during the 2007 or previous investigations. Weston shall review all data, boring logs, or LNAPL observation records, and incorporate this information to revise the upper and lower limits of the LNAPL and sample intervals as presented in Table 1. Weston shall also include

confirmatory samples intervals in the 'presumed clean zone' (i.e. the 2 ft interval above and the 2 ft interval below the observed LNAPL impact zone based on both historic and real time data and observations). For additional information on the proposed confirmatory sample intervals, see comments concerning Table 1, below.

21. Section 2.2 Post-LNAPL Removal Confirmation Soil Sampling, Page 6: The Department also requires additional borings at all historic sample locations where PCBs were detected at concentration of 500 ppm or greater. The Department finds that shifting the boring "off the grid node" to evaluate these historic sample locations unacceptable. Please note, confirmatory sampling in the Former Pond Areas and Muck Areas must include complete vertical and horizontal delineation to confirmed 'clean zones'.

22. Section 2.2, Post-LNAPL Removal Confirmation Sampling, Page 6: The document states, "All soil samples will be analyzed for PCBs..." As previously indicated PCBs are not the only COCs for LNAPL. As such, the Department requires that all soil samples be analyzed for PCBs, and that at least 10% of the soil samples be analyzed for the remaining LNAPL COCs.

23. Section 3.1, LNAPL Removal Confirmation Assessment Methodology, Page 9: See comments concerning Section 3, LNAPL Removal and Section 3.4, LNAPL Recovery Monitoring in the body of the IRM RAWP, and Section 2.1, LNAPL Remedial End-Point Monitoring in this Attachment.

24. Section 3.2, Soil Sample Collection Methodology, Page 10: The document states that soil cores will be collected using acetate sleeves via the Geoprobe boring methodology. In a previous meeting, Weston noted the difficulty in collecting LNAPL and soil samples as the material "kept sliding off the sampler." Weston shall verify that the materials referenced are appropriate based on past discussions concerning the difficulty in collecting samples.

25. Section 3.2, Soil Sample Collection Methodology, Page 11: The document states, "In the event that multiphasic materials are encountered during the post-IRM confirmatory soil sampling program only the soil phase will be analyzed." Weston shall clarify this statement.

26. Table 1: Footnote 1 of Table 1 indicates that the "top and bottom limits of LNAPL" are based on boring logs from Weston's 2007 pre-design investigation. As noted above, the 2007 investigation was specifically designed to "fill in the gaps" of the existing data. As such, Weston shall review all data (historic and 2007 investigation) and revise the "top and bottom limits of LNAPL" and proposed confirmatory sample intervals to reflect all available data, including but not limited to the following:

- Grid node X0_X18 suggests LNAPL was detected from 3.5 to 8.9 ft bgs though boring BLN_B-1 indicates LNAPL was detected from 2 to 19 ft bgs (vertical delineation was not completed.)
- Grid nodes XI_X14 and XI_X13 suggest LNAPL was detected to approximately 7 ft bgs though borings LN_B-22-125E and LN_B-34 indicate LNAPL extends to 15 ft bgs in this area.
- Grid node XF_X19 suggests the top of LNAPL is 7.8 ft bgs though boring LN_B-2 indicates LNAPL was detected from 6.5 to 10 ft bgs.
- Grid nodes XL, XM, XN, XO and XP through X11, X12 and X13 suggest that LNAPL depths are approximately 4 to 8 ft bgs though historic data and borings SB278 and LN_B-47 indicate that LNAPL extends to depths over 20 ft bgs.
- Grid nodes XD, XE, XF, XG, XH, and XI through X14, X15 and X16 suggest that LNAPL was

detected from approximately 2 to 10 ft bgs though boring LN_B-30 indicates LNAPL was detected at 12.5 ft bgs.

27. Figures A1 and A2: Figures A1 and A2 include linear representations of contoured "depth to top and bottom of LNAPL" in the northern reaches of the plume. Weston shall revise the figures to include contour intervals, LNAPL plume depths, and select borings/wells on which these figures were based. Weston shall clarify why the entire LNAPL plume is not represented on these figures.

28. Supplemental Data: Weston shall incorporate into the revised document the supplemental data provided to the USEPA and the Department including the following emails: August 16, 2009 to Department concerning passive trench location; August 28, 2009 to USEPA concerning LNAPL characteristics; September 9, 2009 to USEPA concerning utilities and structural stability analysis; September 1, 2009 to Department concerning LNAPL sample 9A location.

Please take the following corrective actions or make the required submittals within the timeframes indicated:

Corrective Action: Weston shall revise the IRM RAWP for LNAPL Removal per the Department's comments above within 90 days of receipt of this letter.

Note that if deficiencies included herein are not addressed to the Department's satisfaction within the specified time period the Department will consider them to be violations and may assess penalties pursuant to N.J.A.C. 7:26C-10, or pursuant to the terms stipulated in the ACO.

If you have any questions regarding this matter contact Lynn Vogel, Case Manager at (609) 984-5311, or at Lynn.Vogel@dep.state.nj.us, prior to the date indicated.

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